



Provincetown Harbor Subwatershed

Provincetown, Cape Cod, Massachusetts

The Provincetown Harbor Subwatershed is located in Provincetown and Truro. It has an area of 4,111 acres. About half of it is protected as part of the Cape Cod National Seashore. Route 6 runs the length of this subwatershed. Provincetown south of Route 6 is intensely developed both commercially and residentially. Virtually all land north of Route 6 is National Seashore. There are numerous ponds in the subwatershed along with Pilgrim Lake and the long southern boundary is Provincetown Harbor.

A municipal harbor plan was adopted in 1997. It outlines ways to beautify Provincetown Harbor and includes compliance recommendations for individual property owners in order to satisfy Chapter 91 licensing requirements. The plan addresses every waterfront property. The Provincetown plan is the most detailed and stringent of about a dozen the state has approved.

Pilgrim Lake is about three feet deep and spans 350 acres. Three major management concerns for Pilgrim Lake are sand deposition, eutrophication, and nuisance insects. The lake has recurring problems with low oxygen. Until the mid-1800's the lake was open to Provincetown Harbor. The entrance to Pilgrim Lake was then sealed off. With a restricted tidal flow and loaded with organic matter, the lake is chronically oxygen stressed. There are fairly consistent blue-green algal blooms and periodic outbreaks of midges. High values of total phosphorus and ammonia-nitrogen have been recorded. According to officials at the Cape Cod National Seashore, for the past four decades there has been on average one major fish kill every two years. In September 2001, as many as 30,000 fish were killed due to low oxygen concentrations. The majority were juvenile alewife, but some perch and killifish were killed as well. Pilgrim Lake is now experiencing a problem with Asian Carp – an exotic, non-native species. The presence of the fish further contributes to low oxygen levels in the lake.

Unlike most waterfront communities in Massachusetts, state jurisdiction for hundreds of homes and businesses in Provincetown – properties west of Howland Street – is seaward of the high-tide mark. In all other coastal areas, the state claim is at the low-tide mark. This coastline was created by dredge filling, and as such falls under the jurisdiction of Chapter 91, which requires that the public have access to state waterways. Some owners with properties that do not provide public access to the water are facing state enforcement action.

Provincetown has a municipal water system and the water is drawn from three different groundwater well fields in North Truro. According to 1999 figures, on peak days between May and October, Provincetown pumped about 1.9 million gallons to meet demands, exceeding its state approval of 950,000 gallons per day. On an annual basis, the town still pumps below its limit of 347 million gallons. On peak days, saltwater has entered the system. The town faces an ongoing challenge in being able to pump enough water to meet demands. Provincetown was recently awarded a \$750,000 grant to replace a 100 year old water main that transports drinking water from Truro. The Provincetown public water system supplies 350 connections in Truro near the town line.

Provincetown is currently developing a municipal wastewater treatment facility and sewer system. Construction of the treatment facility began in 2002. It is located off of Route 6 near Clapp's Pond on a site nearly surrounded by wetlands that are known to support rare plants and animals. Construction on the sewer system is continuing. About 10 percent of the town, or 235 properties, will immediately hook up to the sewer system upon its completion.

Stewards:

- Unknown

Studies conducted in the watershed:

- Water Resources of Outer Cape Cod. 1998. Cape Cod Commission and Lower Cape Cod Water Management Task Force.
- Salt Marsh Restoration Research/Planning: Herring River, Hatches Harbor, Pilgrim Lake. Cape Cod National Seashore. 1996.
- Needs Assessment Report. February 1997. Part of the Wastewater Management Facilities Planning Study. Documented town's wastewater needs and related issues.
- Draft Alternatives Screening Analysis Report (DASAR). 1997. Part of the Wastewater Management Facilities Planning Study. Identified and screened alternative wastewater technologies and alternative wastewater facility sites.
- Draft Wastewater Management Facilities Plan and Draft Environmental Impact Report.
- Water Resources Management Plan, Cape Cod National Seashore. September 1999. P. Godfrey, K. Galluzzo, N. Price, Massachusetts Water Resources Research Center, UMass-Amherst; and J. Portnoy, Cape Cod National Seashore.
- Cape Cod Atlas of Tidally Restricted Salt Marshes. 2001. Cape Cod Commission.
- Hydrologic Analysis of the Water Resources of Lower Cape Cod. US Geological Survey. Conducted during 2001-2003.
- The Town of Provincetown is undertaking a new source acquisition project. They will be studying supply/demand. The town is looking at desalinization as part of their Capital Improvement Plan.

Who is collecting water quality data and where:

- Center for Coastal Studies has historic water quality data, as well as data on benthic fauna from studies done during the 1980's.
- Monitoring of harbor water quality was conducted by the Center for Coastal Studies during the summer and fall from 1994-1997.

Management actions taken:

- A municipal harbor plan was adopted in 1997.
- Whistle Path Woods land acquisition project, eligible to receive up to \$250,000 in federal Land and Water Conservation Fund assistance in 2001. Town acquired property in 2001.
- In Spring 2001 Provincetown residents voted to ban personal watercraft in the harbor.
- Construction of Wastewater Treatment Facility using Cleanwater State Revolving Fund grant monies began in 2002.
- The Massachusetts Wetlands Restoration Program is considering a large restoration project for the Herring River and Pilgrim Lake. This project would involve restoring 1,000 acres to tidal influence. The Army Corps of Engineers will design and construct the restoration if a local sponsor can come up with \$75,000 non-federal cost share.
- Upgrade and expansion of MacMillan Pier, to be completed in Fall 2002. The Town of Provincetown is paying \$3.8 million of the project and state and federal grants are contributing \$11.7 million.
- Officials from the National Seashore are working with the Truro Conservation Commission and state officials on restoring tidal flow to East Harbor (Salt Meadow, Moon Pond & Pilgrim Lake).

- Cape Cod National Seashore ecologists removed 1,200 pounds of Asian Carp from the creek connecting Salt Meadow and Pilgrim Lake in the winter of 2001/02.
- The Truro Board of Health was awarded a Wellhead Protection Grant to conduct three hazardous waste collection days and to develop and distribute hazardous material public information. Their project targets the protection of the Provincetown wells located in Truro. 2002.
- Town of Provincetown received a FY03 Coastal Pollution Remediation-4 the Environment Grant for its Provincetown Harbor Project. \$37,285.
- Hatches Salt Marsh Restoration Project under the Massachusetts Wetlands Restoration Program. Restored 60 acres of salt marsh. Hatches Harbor is located just to the west of this subwatershed.

Subwatershed facts: (For data sources see Appendix)

- 21 E sites: 6 – located at Old Burn Dump, Route 6; CC Oil Bulk Factory, Winthrop St.; Duarte's mall, Bradford St.; Rod's Service Station; Brewster St, Harry Kemp Way; Provincetown Mechanics, Bradford St.
- Solid waste sites: 2
- Zone IIs located in this watershed: 0
- Interim Wellhead Protection Areas (IWPAs): 1
- Percent of the undeveloped land that is protected (according to 1985/1990 data): 90%
- Acres of existing wetlands: 658
- Certified vernal pools: 0
- Named freshwater ponds: Shankpainter, Clapp's, Duck, Bennett, Pasture, Great, Blackwater, Grassy (*Provincetown*), Pilgrim Lake (*Truro*)
- Named rivers or creeks: none
- 1998 Massachusetts 303(d) List of Impaired Waterbodies: Provincetown Harbor - pathogens.
- Beach closures: The beaches at Breakwater Motel, Johnson Street, Kendall Lane, Ryder Street, and Beach Point were each closed to swimming for at least one day during the 2001 season due to high enterococcus bacteria counts.
- Shellfish growing areas: Provincetown Harbor west of town is conditionally closed for various natural reasons. The area around MacMillan Wharf is also closed. Parts of the harbor to the east and south of the prohibited section are conditionally approved. Hatches Harbor is open to shellfishing as are the southern reaches of the harbor.
- This watershed contains Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife.

Priorities:

- Initiate water quality monitoring program in Provincetown Harbor for nutrients and bacteria to participate in the Estuaries Project, Southeastern Massachusetts Embayment Restoration. Work with the Estuaries Project to develop a QAPP.
- Examine stormwater runoff from the rotary (DMF Sanitary Survey).
- Conduct smoke tests in pipes in town center to determine if they contribute discharge to the harbor.
- Clapp's, Shankpainter, Duck, Great, and Bennett Ponds need volunteers to participate in the Pond and Lakes Stewardship Project (PALS), measuring water quality and other characteristics of the ponds.

- East Harbor/Pilgrim Lake Salt Marsh Restoration project under the Massachusetts Wetlands Restoration Program. Involves 183 acres of salt marsh. Army Corps of Engineers estimates cost of restoration of degraded wetlands and of riverine migratory corridors to be \$286,000.
- Support projects recommended in the Water Resources Management Plan of the Cape Cod National Seashore (1999) (p. 134-149).
- Determine bathymetry and sedimentation patterns in Pilgrim Lake, study controls of midge production, and evaluate the cause of the eutrophication problems (Water Resources Management Plan of the Cape Cod National Seashore).
- Implement those salt marsh restoration projects identified in the 2001 *Cape Cod Atlas of Tidally Restricted Salt Marshes* that have been evaluated and prioritized by the towns. Sites are: Provincelands Road/Route 6A restriction of unnamed channel (Site PR-1) and Restrictions of Pilgrim Lake by Route 6A and Route 6 (Site TR-6) and by High Head Road (Site TR-7).

Recreation:

Camping areas:

- Dune's Edge Campground
- Coastal Acres Camping Court

Golf courses: none

Pathways and trails:

- several miles in the Provincelands in the Cape Cod National Seashore
- Small Swamp and Pilgrim Spring Trails
- Corn Hill to Pamet Harbor RR Right of Way
- www.capecodcommission.org/pathways/trailguide.htm

Public access points: 13

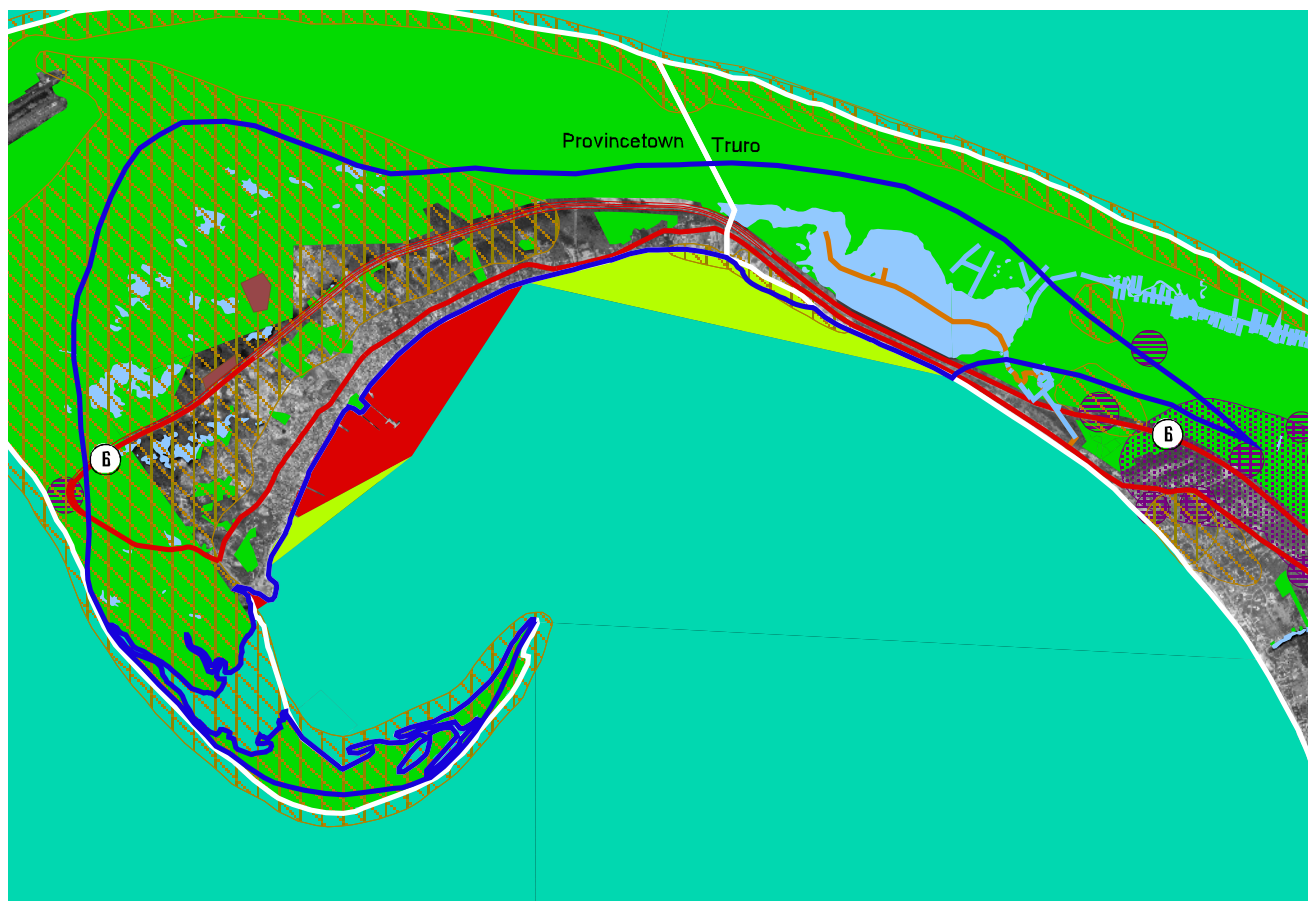
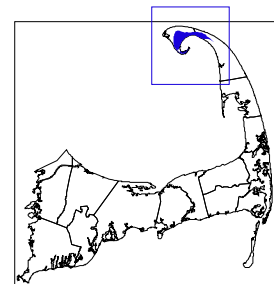
- www.state.ma.us/dfwele/pab/pabSEmap.htm

Public beaches and landings:

- Pilgrim Beach, Beach Point
- Landing near Slotts Crossing Road

Provincetown Harbor

Provincetown and Truro, MA



Watershed Resources



0 0.5 1 1.5 Miles



Natural Heritage and Endangered Species Program Data

- Certified Vernal Pool
- Priority Habitats of Rare Species
- Estimated Habitats of Rare Species

Groundwater Protection Areas

- Interim Wellhead Protection Area
- Zone II
- Solid Waste Facility

Watershed Boundary

Anadromous Fish Run

Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- MANAGEMENT CLOSURE
- PROHIBITED
- RESTRICTED
- Open Space

Streams

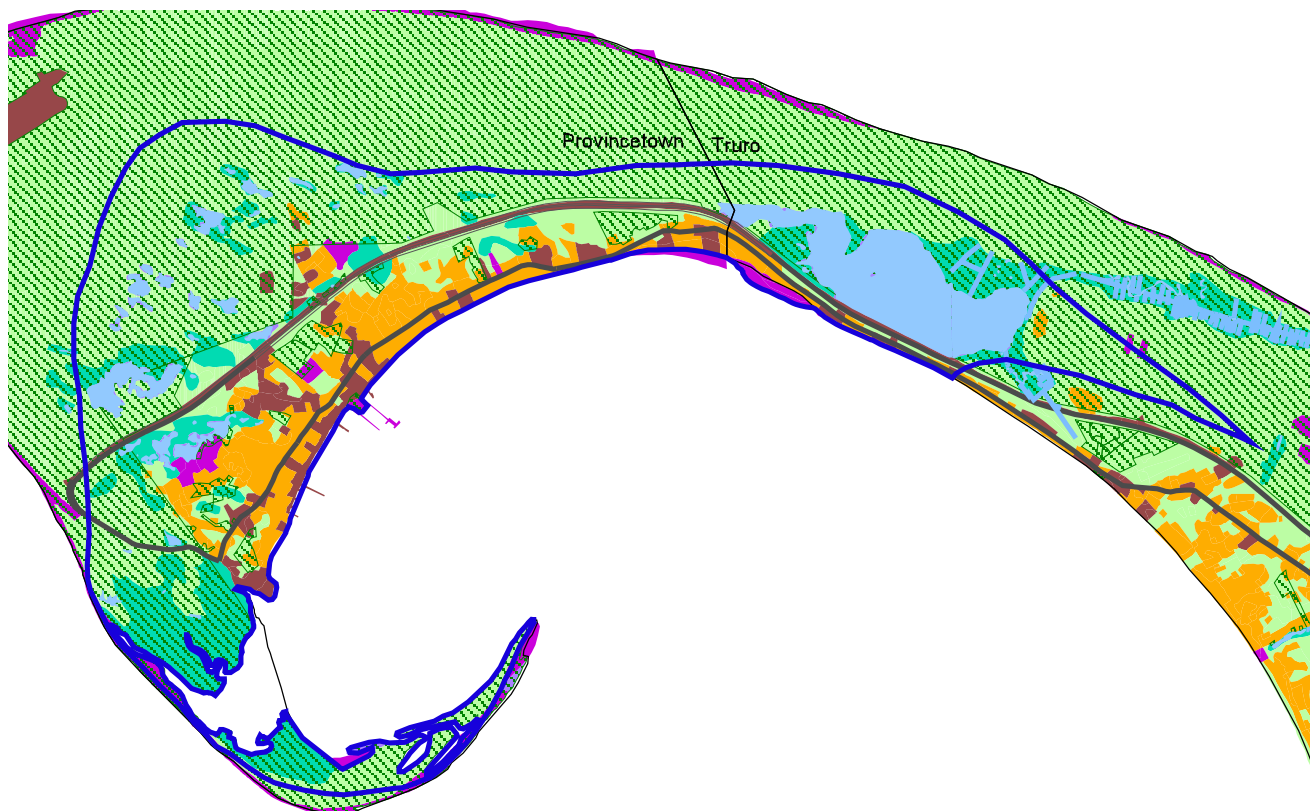
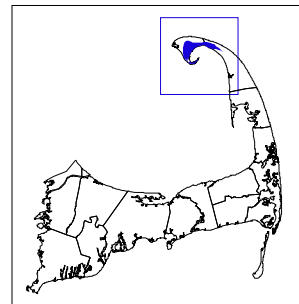
Ponds

Roads



Provincetown Harbor

Provincetown and Truro, MA



Land Use



0 0.5 1 1.5 Miles

A horizontal scale bar with markings for 0, 0.5, 1, and 1.5 miles.

Land Use

- non-residential developed
- open land
- recreation
- residential
- water
- wetland

- Streams
- Ponds
- Watershed Boundary
- Protected Open Space

